



COURSE OUTLINE: NASA105 - VIRTUAL INFRA

Prepared: Michael Wood

Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	NASA105: VIRTUALIZATION INFRASTRUCTURE	
Program Number: Name	2195: NETWORK ARC SECURITY	
Department:	COMPUTER STUDIES	
Semesters/Terms:	18F	
Course Description:	This course will cover the various technologies and business models related to virtualization and cloud computing. Students will deploy and manage a virtual infrastructure, taking into account the security considerations. Specific topics will include active directory integration, network security policies, firewall configuration and effective use of privileges, roles and permissions.	
Total Credits:	5	
Hours/Week:	5	
Total Hours:	75	
Prerequisites:	There are no pre-requisites for this course.	
Corequisites:	There are no co-requisites for this course.	
Vocational Learning Outcomes (VLO's) addressed in this course:	2195 - NETWORK ARC SECURITY	
Please refer to program web page for a complete listing of program outcomes where applicable.	VLO 4	Design multi-site enterprise operating system infrastructures using a security architecture framework.
	VLO 6	Design and implement a virtualization and cloud computing focused infrastructure specifically addressing security risks associated with incorporating virtualization into an organizations infrastructure.
	VLO 7	Deploy servers to host web applications, focusing on securing the server and web from identified security risks.
	VLO 8	Identify and plan IT services that support business goals and objectives, and explain specific activities directly related to the delivery and support of the services.
Essential Employability Skills (EES) addressed in this course:	EES 4	Apply a systematic approach to solve problems.
	EES 5	Use a variety of thinking skills to anticipate and solve problems.
	EES 6	Locate, select, organize, and document information using appropriate technology and information systems.
	EES 7	Analyze, evaluate, and apply relevant information from a variety of sources.
	EES 9	Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.
Course Evaluation:	Passing Grade: 50%,	
Course Outcomes and Learning Objectives:	Course Outcome 1	Learning Objectives for Course Outcome 1
	1. Understand the various types of virtualization	1.1 hypervisors 1.2 virtual servers



technologies and where to apply them in an organization.	1.3 virtual networks 1.4 public cloud 1.5 private cloud 1.6 platform as a service 1.7 infrastructure as a service 1.8 software as a service
Course Outcome 2	Learning Objectives for Course Outcome 2
2. Understand how to install, configure and manage virtual servers.	2.1 installing the hypervisor 2.2 managing the hypervisor 2.3 configuring settings 2.4 host storage and networking
Course Outcome 3	Learning Objectives for Course Outcome 3
3. Understand how to install, configure, monitor and manage virtual machines and networks.	3.1 creating and configuring virtual hard disks 3.2 creating and configuring virtual machines 3.3 installing and importing virtual machines 3.4 managing virtual machine checkpoints 3.5 monitoring virtual resources
Course Outcome 4	Learning Objectives for Course Outcome 4
4. Understand how to create and configure virtual machine networks.	4.1 creating and using virtual switches 4.2 advanced networking features 4.3 configuring and using network virtualization
Course Outcome 5	Learning Objectives for Course Outcome 5
5. Understand the virtualization tools that allow for high availability and redundancy.	5.1 providing high availability and redundancy for virtualization 5.2 implementing virtual machine movement 5.3 implementing and managing virtual machine replication
Course Outcome 6	Learning Objectives for Course Outcome 6
6. Understand how to implement fail-over clustering with shared storage.	6.1 configuring and using shared storage 6.2 implementing and managing failover clustering
Course Outcome 7	Learning Objectives for Course Outcome 7
7. Understand how to install and configure and use System Center Virtual Machine Manager	7.1 integrating system center and server virtualization 7.2 overview of system center virtual machine manager 7.3 installing system center virtual machine manager 7.4 adding hosts and managing host groups 7.5 managing networking infrastructure 7.6 managing storage infrastructure 7.7 managing infrastructure updates 7.8 clustering 7.9 creating virtual machines 7.10 cloning & converting virtual machines
Course Outcome 8	Learning Objectives for Course Outcome 8
8. Understand how to produce and manage clouds.	8.1 introduction to clouds 8.2 creating and managing a cloud 8.3 working with user roles in virtual machine manager 8.4 azure 8.5 windows azure pack (on-prem azure)



	Course Outcome 9	Learning Objectives for Course Outcome 9	
	9. Understand how to manage services.	9.1 understanding Services in Virtual Machine Manager 9.2 creating and Managing Services in VMM 9.3 using System Center App Controller	
	Course Outcome 10	Learning Objectives for Course Outcome 10	
	10. Understand how to protect and monitor virtualization infrastructure	10.1 protecting virtualization infrastructure 10.2 monitoring and reporting	
Evaluation Process and Grading System:	Evaluation Type	Evaluation Weight	Course Outcome Assessed
	Labs	40%	All
	Tests	60%	All
Date:	September 4, 2018		
	Please refer to the course outline addendum on the Learning Management System for further information.		